the group consisting of loop reactors and gas phase reactors and wherein said reactors comprise at least one loop reactor and at least one gas phase reactor,

- employing different amounts of hydrogen as a molar mass modifier in at least two of the reactors, and
- carrying out the polymerization reaction in the presence of a catalyst system which catalyzes the formation of a high molar mass polymerization product having a MFR_2 of less than 0.1 g/10 min and a low or medium molar mass polymerization product having a MFR_2 of more than 0.5 g/10 min, wherein the polymerization reaction is carried out in the presence of a catalyst system, which catalyzes the formation of a high molar mass polymerization product having an MFR2 of less than 0.04g/10 min and a low or medium molar mass polymerization product having a MFR2 of more than 0.5g/10min,

wherein the catalyst comprises a catalyst component, a cocatalyst component, an external donor and, optionally, an internal donor, the procatalyst component of the catalyst system containing magnesium, titanium, halogen and an electron donor, said catalyst system further containing an external donor having the general formula of

$$R'R''C(COMe)_2$$

wherein R' and R" are the same or different and stand for a branched aliphatic or cyclic or aromatic group.

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15. (Twice Amended) The process according to claim 14, wherein the metallocene compound in the metallocene catalyst is bridged bis(2-R-4-R'-indenyl)M Cl_2, wherein both R and R' are aliphatic, cycloaliphatic or aromatic hydrocarbons having 1 to 18 C atoms, R' is phenyl or napththyl, and R is a lower alkyl, M is a transition metal, and R and R' may contain heteroatoms, and the bridge between the indenyls comprises 1 to 3 atoms.

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16. (Amended) A process for preparing linear high melt strength propylene homopolymers and copolymers, comprising the steps of

- subjecting propylene and optionally other olefins to polymerization in a plurality of polymerization reactors connected in series wherein said reactors are selected from

the group consisting of loop reactors and gas phase reactors and wherein said reactors comprise at least one loop reactor and at least one gas phase reactor,

- employing different amounts of hydrogen as a molar mass modifier in at least two of the reactors, and
- carrying out the polymerization reaction in the presence of a catalyst system which catalyzes the formation of a high molar mass polymerization product having a MFR_2 of less than 0.1 g/10 min and a low or medium molar mass polymerization product having a MFR_2 of more than 0.5 g/10 min,

wherein the catalyst system comprises a metallocene catalyst, wherein the metallocene compound in the metallocene catalyst is bridged bis(2-R-4-R'-indenyl) M Cl_2, wherein both R and R' are aliphatic, cycloaliphatic or aromatic hydrocarbons having 1 to 18 C atoms, R' is typically phenyl or naphthyl, and R is a lower alkyl, M is a transition metal, and R and R' may contain heteroatoms, such as silicon, nitrogen, phosphorous or germanium, and the bridge between the indenyls comprises 1 to 3 atoms, such as carbon, silicon, nitrogen, phosphorous or germanium,

wherein the metallocene compound is dimethylsilyl-bis(2-methyl-4-phenyl-indenyl)zirconiumdichloride.

20. (Amended) The process according to claim 1, wherein said reactors comprise a loop reactor and a gas phase reactor in that order.

27. (Thrice Amended) The process according to claim 25, wherein an overhead stream obtained from the evaporation of volatile components is condensed, a concentrated fraction of propylene being recovered from the condensed stream and recirculated to the reactor.

31. (Twice Amended) A process for preparing linear high melt strength propylene homopolymers and copolymers, comprising the steps of

- subjecting propylene and optionally other olefins to polymerization in a plurality of polymerization reactors connected in series wherein said reactors are selected from

the group consisting of loop reactors and gas phase reactors and wherein said reactors comprise at least one loop reactor and at least one gas phase reactor,

- employing different amounts of hydrogen as a molar mass modifier in at least two of the reactors, and
- carrying out the polymerization reaction in the presence of a catalyst system which catalyzes the formation of a high molar mass polymerization product having a MFR_2 of less than 0.1 g/10 min and a low or medium molar mass polymerization product having a MFR_2 of more than 0.5 g/10 min,

wherein the second reactor is a gas phase reactor, wherein propylene and optionally comonomers are polymerized in a gaseous reaction medium,

wherein an overhead stream or part of it is recirculated to the second reactor.

32. (Twice Amended) A process for preparing linear high melt strength propylene homopolymers and copolymers, comprising the steps of

- subjecting propylene and optionally other olefins to polymerization in a plurality of polymerization reactors connected in series wherein said reactors are selected from the group consisting of loop reactors and gas phase reactors and wherein said reactors comprise at least one loop reactor and at least one gas phase reactor,
- employing different amounts of hydrogen as a molar mass modifier in at least two of the reactors, and
- carrying out the polymerization reaction in the presence of a catalyst system which catalyzes the formation of a high molar mass polymerization product having a MFR_2 of less than 0.1 g/10 min and a low or medium molar mass polymerization product having a MFR_2 of more than 0.5 g/10 min,

wherein the second polymerization product is fed into a third reactor and propylene is subjected to a third polymerization reaction to produce a third polymerization product.

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35. (Amended) A process for preparing linear high melt strength propylene homopolymers and copolymers, comprising the steps of

- subjecting propylene and optionally other olefins to polymerization in a plurality of polymerization reactors connected in series wherein said reactors are selected from the group consisting of loop reactors and gas phase reactors and wherein said reactors comprise at least one loop reactor and at least one gas phase reactor,
- employing different amounts of hydrogen as a molar mass modifier in at least two of the reactors, and
- carrying out the polymerization reaction in the presence of a catalyst system which catalyzes the formation of a high molar mass polymerization product having a MFR_2 of less than 0.1 g/10 min and a low or medium molar mass polymerization product having a MFR_2 of more than 0.5 g/10 min,

wherein

- propylene and optionally other olefins are polymerized in a loop reactor at a pressure of 25 to 80 bar, at a temperature of 60 to 100°C to provide a low or medium molar mass polymerization product of $MFR_2>0.5$,
- the polymerization product of the loop reactor is recovered and conducted to a flash tank, wherein an overhead product containing hydrogen and non-reacted propylene is separated from a bottom product containing polymerized solids,
- the bottom product is conducted to a gas phase reactor,
- additional propylene and optionally other olefins are fed to the gas phase reactor,
- the additional propylene and optionally other olefins are subjected to polymerization at a pressure of 20 bar or more to provide a high molar mass polymerization product of $MFR_2 < 0.1$,
- the polymerization product of the gas phase reactor is recovered and conducted to a flash tank, wherein the pressure of the product is reduced to produce an overhead product containing hydrogen and non-reacted propylene and a bottom product primarily containing polymerized solids,
- at least a part of the overhead product is recycled to the gas phase reactor, and
- polypropylene polymer or copolymer is recovered from a part of the bottom product of the flash tank.

38. (Twice Amended) A process for preparing linear high melt strength propylene homopolymers and copolymers, comprising the steps of

- subjecting propylene and optionally other olefins to polymerization in a plurality of polymerization reactors connected in series wherein said reactors are selected from the group consisting of loop reactors and gas phase reactors and wherein said reactors comprise at least one loop reactor and at least one gas phase reactor,
- employing different amounts of hydrogen as a molar mass modifier in at least two of the reactors, and
- carrying out the polymerization reaction in the presence of a catalyst system which catalyzes the formation of a high molar mass polymerization product having a MFR_2 of less than 0.1 g/10 min and a low or medium molar mass polymerization product having a MFR_2 of more than 0.5 g/10 min, wherein
- propylene and optionally other olefins are polymerized in a loop reactor at a pressure of 25 to 80 bar, at a temperature of 40 to 100°C to provide a high molar mass polymerization product of $MFR_2<0.1$,
- the polymerization product of the loop reactor is conducted directly to a gas phase reactor fluid bed,
- additional propylene and optionally other olefins are fed to the gas phase reactor,
- the additional propylene and optionally other olefins are subjected to polymerization at a pressure of 20 bar or more to provide a low or medium molar mass polymerization product of $MFR_2>0.5$,
- the polymerization product of the gas phase reactor is recovered and conducted to a flash tank, wherein the pressure of the product is reduced to produce an overhead product containing hydrogen and non-reacted propylene and a bottom product primarily containing polymerized solids,
- at least a part of the overhead product is recycled to the gas phase reactor, and
- polypropylene polymer or copolymer is recovered from a part of the bottom product of the flash tank.

41. (Thrice Amended) A process for preparing linear high melt strength propylene homopolymers and copolymers, comprising the steps of

- subjecting propylene and optionally other olefins to polymerization in a plurality of polymerization reactors connected in series wherein said reactors are selected from the group consisting of loop reactors and gas phase reactors and wherein said reactors comprise at least one loop reactor and at least one gas phase reactor,
- employing different amounts of hydrogen as a molar mass modifier in at least two of the reactors, and
- carrying out the polymerization reaction in the presence of a catalyst system which catalyzes the formation of a high molar mass polymerization product having a MFR_2 of less than 0.1 g/10 min and a low or medium molar mass polymerization product having a MFR_2 of more than 0.5 g/10 min, which is nucleated for higher crystallization temperature, stiffness and optical properties.